DOCUMENT RESUME

ED 104 308 HE 006 436

AUTHOR Monahan, James
TITLE The Flexner Report: A Study in Polemics.
PUB DATE 2 Apr 75
NOTE 27p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, D.C., April 2, 1975)

EDRS PRICE MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS Change Agents; *Educational Change; Educational Needs; *Higher Education; *Historical Reviews; *Medical Education; *Medical Schools; Speeches
IDENTIFIERS *Flexner (Abraham)

ABSTRACT

Abraham Flexner wrote a report in 1910 summarizing the results of his survey of medical schools in which the state of medical education was found to be deplorable. Contemporary opinion holds the report as the stimulus for reform in medical education; however, the report was a documentation of a priori assumptions and a polemic on the philosophy of the scientific physician as the goal of medical education. Reform in medical education began before Flexner wrote and continued in the same vein after his publication. It is the intention of this paper to formulate an hypothesis about change in medical education. (Author)

ED104308

The Flexner Report: A Study in Polemics

by

James Monahan

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY
James Monahan
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

Presented at the American Education Research Association Meeting

Washington, D.C.

April 2, 1975

Copyright 1975

On June 6, 1910, the Carnegie Foundation for the Advancement of Teaching raised headlines across the country and drew praise and damnation from all segments of the medical profession with its publication of Bulletin #4, Medical Education in the United States and Canada. A report on the conditions in medical schools together with a theory of medical education, it was authored by a layman and one-time schoolmaster, Abraham Flexner, and has come to be known simply as The Flexner Report. Today it stands as one of those more-lauded-than-read classics to which much effect is attributed.

The major purpose of this paper is to examine those attributions in the first step toward defining a theory of change in medical education. Such an examination is necessary not only from an historiographic point of view but from the practical one of refocusing contemporary thinking on the actual process of how medical education today became what it is.

It is claimed that Flexner's Report effected a revolution in medical teaching[1] which specifically was the establishment of the "structure and set of principles which continue to dominate medical education."[2] Even the dean of the Harvard School of Medicine sees the natural science[5] entering the medical curriculum "largely in response to Flexner's Report."[3]

In his study of medical education from 1910 to 1956, Saul Jarcho asserts that the Report "added force and direction to a movement that had existed for decades."[4] He only suggests a vague catalytic characterization while Richmond makes it more explicit

by claiming that the Report "probably accelerated the trend" toward reducing the number of graduates.[5] Rothstein argues that it actually accelerated the trend toward the closing of schools.[6]

These attributions owe their existence to the fact that not much is known about medical education from 1870-1910. Gert Brieger claims that the "unhistorical" comments being made about Flexner are due to this gap in our knowledge.[7]

But a trend is rising toward more criticism if not study of Flexner. Robert Hudson finds some of that criticism fadish, but it is creating the atmosphere for a re-evaluation--Hudson's among them--of that revered man and his Report.[8] Rosemary Stevens even suggests that the Report may have been irrelevant to medical education even when it was written.[9] What is surely the case, however, is that medical educators are largely unaware of the nature of the publication.

While it was written with the conviction that "medicine is based solidly on science; the medical practitioner must be a scientist, treating every clinical situation as a scientific research project",[10] it must not be assumed that conviction was established during the inspection of the schools or that it did not exist to a large extent in the profession long before Flexner. This premise had generated the organization of John Hopkins in 1893 and was very much at the heart of Lewellys Barker's* 1902 initiation of the controversy over full-time clinical teaching.[11]

---

*Barker had communicated with Flexner during the study and included galley proofs of his second article on the full-time controversy.

The Report, as I will illustrate later, premised that public revelation of the sorry state of medical education would rouse the people to action, and pressure would mount to force a realignment of the entire structure and purpose of medical education. Historians seem to have bought that idea for effecting change and to have accepted that, because the Report discussed certain ideas, and because those ideas appear to govern contemporary medical education, the publication was responsible.

A close analysis of the Report and the conduct of the study behind it will show that the claimed effects could not have been brought about, particularly in the way assumed. It was a polemic for only one side of the reform movement; it employed principles from that side for proposing a solution that was more in keeping with the Carnegie Foundation's needs than those of the profession. Only part of it derived from the much-touted personal inspection tour--an inspection that was a priori, biased, and hurried and revealed nothing not already known about the state of medical education.

The analysis in this paper must begin with the conditions leading to the initiation of the study.

The Council on Medical Education, preceded by an ad hoc committee on education, was permanently established in the AMA in 1904. It had no legal authority behind it, and what it might accomplish could only be done through coercion. It assumed that publicity or the threat of it would motivate schools to bring themselves into line with the Council's ideas.

This position lead ultimately to the publication of what were once privately communicated results of school inspections. The ratings appeared in the Journal of the American Medical Association, and medical schools found themselves publically labeled as "A" (outstanding), "B" (acceptable), and "C" (unacceptable).

The effect of these labors was not satisfying to the Council. Furthermore, the schools, especially those rated "C", reacted strongly to the tactic. Dr. Arthur Bevan, chairman of the Council and former professor at Rush, sought to have the evaluations of the Council validated by an impartial outside agency. He turned to the Carnegie Foundation.[12]

The Foundation had independently been toying with such an investigation. Its attempts to articulate the distinction between college and university led the Foundation to conclude that the entire educational system must be defined in conjunction with professional education, hence that level also needed study. It also needed endowing; requests for money came regularly to the Foundation, whose problem became deciding where the money should go in order to do the most good.[13]

In December of 1908, members of the Council met in New York with Abraham Flexner and Henry S. Pritchett, president of the Foundation. Pritchett had learned of the efforts of medicine to do something about its education and the massive amount of data already collected through correspondence with Bevan. That information helped the Foundation to eliminate law and theology as the

object of study, for those professions had not taken similar action and did not appear prepared to do so. All the data that the medical profession had would be put at the disposal of the Foundation, which came to the meeting with a schema--if not a draft manuscript--for the impending study in which "the Foundation would be guided largely by the Council's investigations, but to avoid the usual claims of partiality no more mention should be made in the report of the Council than any other source of information."[14] This low profile of the Council was agreed to, it appears, in order to meet the Council's needs for the outside evaluation to be accepted as independent, for the Council's next inspection--conducted parallel with Flexner's tour--and the new classifications were to be withheld until the publication of the report so that the Council's would then have more effect.[15]

But credited or not, the Council--or at least some of its members--would have direct input during the investigation. Besides Dr. N.P. Colwell, secretary of the Council, accompanying Flexner,[16] Dr. W.T. Councilman became a consultant. Dr. Councilman provided Flexner with an evaluation of the situation in Maine and, from his vantage point at Harvard, supplied "a confidential statement" on the educational defects of Boston Hospital, a statement that did confirm Flexner's conclusions.[17]

This agreement for a low profile for the Council eventually backfired. In his annual statement for 1911, Dr. Colwell included several "facts" that he wanted recorded in the minutes so that if ever "necessary or desirable" they might be published at a future time

in order to demonstrate the Council's, not the Foundation's, real influence in medical education. While admitting that the Council's classifications were received "with very little comment" after the "drastic report by the Carnegie Foundation"--the Report actually found about six of the Council's Class A schools unacceptable--Colwell asserted that the impression given that medical schools were at their worst was not true; they had never been better.[18] Editorially in the Journal, the report was found subject to criticism "in some matters of detail"; on the whole, the conditions reported were "true and indisputable", but, the Council felt constrained to point out, "in fairness to the colleges" that the called-for improvements had been planned before the publication of the Report's findings.[19]

In January, 1909, Flexner began his actual inspection of the schools. Each school would receive a statement of the evaluation for emendation of the factual statements not, as it turned out, of the judgments made. In this evaluation, the type of school was identified; the degree of its university affiliation established; its enrollment and financial resources presented. The most discussed categories were the laboratory and clinical facilities which were analysed in relationship to the facilities necessary to the education of the scientist-physician.

While the categories paralled the outline suggested by Dr. Colwell;[20] the criteria and the severity of its application is what is important. Flexner's criteria lay in the Hopkins model.

Established in 1893, John Hopkins was, Flexner wrote, the "first medical school in America of genuine university type, with something approaching adequate endownment, well-equipped laboratories...modern teachers, devoting themselves unreservedly to medical investigation and instruction, and with its own hospital."[21]

A critical element in this model is the meaning of "genuine university type", a meaning that grew out of prior studies of the Foundation. In the case of medical schools, a university had three tasks: to assume the financial responsibility, to enforce the standards of admission, and to insist on the scientific standard. Otherwise, it was only nominally a part of the university.[22]

Not all schools understood the relationship in the same way. When Flexner applied his definition to the Denver & Gross Medical School and concluded that it was only nominally a part of the University of Denver, the president responded that such words were not the words of a sincere man, for truly Denver & Gross was their medical department; the university owned the buildings.[23]

The closer a school came to the ideal, of course, the more modern was the estimation. Cornell illustrates this modern end of the spectrum and also the resulting bias of the a priori assumption that Hopkins must be the model for all medical education.[24]

Cornell was committed to producing the investigator, leaving to others the task of "educating competent physicians in larger number and more nearly fitted to the public demand." The student

would have to come to Cornell with a collegiate preparation that would permit his "taking an efficient part" in the research activities.[25]

In the Report, Cornell was not criticized for this bias as we will see other educators were criticized for the opposite bias. The only criticism was that a practicing surgeon was teaching anatomy. "Otherwise...full-time teachers...devoting themselves to teaching and research...the department is animated by university ideals."[26*] The fact that the medical school was not at Ithaca but separated from the mother university did not seem to hurt its achievement of the "university ideal" as Flexner tended to argue was the consequence of such other separations.[27]

So many schools charged this bias. The President of Tufts, Frederick Hamilton, claimed that the review "emphasizes only the things which the Foundation seems fit to criticize."[28] The schools' criticisms cannot be totally disregarded by the fact that Flexner's stringent criticism may have produced that tendency on the part of the schools. It was not the adverse criticism but the basis for it.

President Hamilton complained that Flexner's standards were arbitrary, and whether or not any school measured up to them was of concern only to Flexner.[29] James Walsh, Dean of Fordham, while denying it as a conscious aim, lamented that "we are being criticized as not being up to an ideal which no other American Medical College with possibly one exception, Johns Hopkins, has attained."[30]

---

*Note the similarity in the phrase "devoting...research" in the Cornell description and the Hopkins apostrophe quoted on page 7.

Were the objective otherwise, it would have been as President Hamilton had hoped: to find out which schools, particularly given their diverse admission requirements, turned out competent physicians and that information given to the public.[31]

That the inspection tour had an original fact-finding purpose seems not to be true. It must be remembered that Flexner set out thoroughly armed with the Council's data and of a mind to seek deviations from an established model rather than to find out just what schools were doing and how they were doing it. The point may be illustrated by the whirlwind nature of the tour. The visits had to be cursory and quick.[32]

From January, 1909, to the summer break in May, Flexner visited 97 schools. The rest were seen the following October through December, leaving only 18 schools to be seen in 1910. March, April, and November were the busiest months when 78 schools alone were visited. Flexner was in Lincoln, Nebraska, April 25, 1909, and planned to reach San Francisco by May 2, doubling back to Minneapolis "about the 7th or 8th." "The schools are small," he wrote back to his office, "and I shall not tarry long in any one place."[33]

It was a "flying visit of a few days" as the president of the University of North Carolina percieved it. He then raised the question of "just and reliable conclusions."[34] Dean Stover's estimation of the Denver & Gross visit was that Flexner, coming prepared on what to find fault with, made only a "perfunctory 'inspection'".[35] The sweeping statements about Maine's two schools,

it was asserted, could hardly be justified on a "cursory inspection of the plant and conversation with a few officials" that took all of "two hours in Brunswick and two or three in Portland."[36]

Given such an inspection tour, the bias toward the production of the scientific physician, and the original Foundation need for a base for deciding on money allocations, the final Report becomes more an in-house document spelling out the purpose, for and identifying recipients of, Foundation money.* The basic end it sought was not to establish principles or a structure but to argue the hasty demise of schools that did not measure up to the Hopkins ideal.

Flexner wrote that, with the Report, they hoped

> to reduce the number of our medical schools so that a smaller number may be more adequately endowed, so that the requisite number of medical students may be concentrated in those fewer medical institutions, and so that clinical teaching, as devoted and impersonal as that in our best laboratories, may become the rule rather than, as now, the exception.[37]

For such an end, the Report had inventoried the state of medical education and contrasted what is with what ought to be.[38] This contrast supported the preliminary supposition that the day of the proprietary school had ended; modern medicine could not be taught supported only by student fees.[39] The spread of the proprietary school would be prevented by publication of the data which demonstrated the unsoundness of the endeavor. Flexner

---

*As it turned out, it was Rockefeller money, under Flexner's direction on the General Education Board, that went to medical schools rather than Carnegie's for the most part.

admitted to the president of Northwestern that efforts were going on during the investigation, too, to achieve that end: "...the details upon which our opposition is based have already been used to stop several deals of this kind and to end the existence of certain other schools."[40]

Mergers as solutions to the problem were encouraged regardless of the way in which medical educators perceived those problems. The political situation in Colorado, Pritchett said, was of no concern to the Foundation. He hoped that the Colorado men had sufficient patriotism* to ignore politics and join Denver & Gross and the University of Colorado for a more efficient school.[41] The suggestion that Harvard absorb Tufts was quickly turned aside, for the merger was seen as detrimental to Harvard.[42]

Those colleges which would remain, as will become clear, were to be the ones devoted to research and the development of medical knowledge. Research activity had already been a criteria for evaluation by the Council. Frederick Waite had faulted the University of Colorado in his 1908 inspection for the Council--Flexner used a copy of the report--on the lack of enthusiasm for research.[43] Many schools were placing research in a secondary role; their attitude was about the reverse of Cornell's, and they were treated just as differently. "Doubtless," Flexner wrote in the Report, "there are professors who are satisfied to go on producing doctors and to let other institutions produce knowledge"[44], but

---

*On "educational patriotism", see the Report, p. xiii.

without their, and their schools', devotion to research, those professors could not be considered modern educators.

For instance, the president of Tufts learned that he was "thinking in the old sense, not in the modern one."[45] And it was pointed out to the president of the University of Denver that the discrepancies between his estimation of his school and the Foundation's lay in that he had "in mind as a standard still the old time conception of medical teaching."[46]

Principles of modern medical teaching were not being derived or established by Flexner; they were being used by him. This use necessitated ignoring or arguing away any opposing theories. Flexner did just that in the curriculum chapters of Part I.

The principles of modern medical teaching had been extensively argued in the literature* and had long been on the minds of medical educators. The Foundation accepted the one which led to an emphasis on research and productivity for both the student and the teacher. In the Foundation's judgment

> the real tests of a medical school are furnished by the intellectual maturity of the students whom it accepts as equal to its opportunity, by the facilities, laboratory and clinical, which it furnishes to its teachers, by the productivity of its teachers and its students subsequently.[47]

All students were to encounter the same curriculum and experiences regardless of their future position in medicine. In Chapter IV, "The Course of Study: The Laboratory Branches", Flexner reduced the needs of the active practitioner and the

---

*Flexner cites many sources in Chapter IV with publication dates ranging from 1893 to 1909--most of them from Hopkins men.

original researcher to the same thing by showing that in both cases, in the approach to a research problem or a patient, the mental process is the same.[48] Instruction centered around the scientific method in a research-oriented curriculum would train all students in that mental process. With this argument, Flexner approached the Council's point of view discussed at the 1908 New York meeting.[49]

In this chapter also is described the structure of the medical school as it existed: "two fairly equal sections: the first two years are devoted mainly to the laboratory sciences..; the last two to clinical work in medicine, surgery and ostetrics." The articulation between the two years and the nature of the teaching in the laboratory sciences were moot points. "A layman," Flexner modestly wrote, "hesitates to offer an opinion where doctors disagree."[50] But from the pedagogical point of view, he urged, the laboratory sciences should be taught so as to develop the scientific point of view, and undergraduate instruction in these sciences should be "explicitly conscious of its professional end and aim."[51] (This point combines the positions of Drs. Councilman and Vaughn expressed in the 1908 New York meeting.)[52]

(The lines of advocacy in the reform movement had been drawn on just the points that Flexner dealt with in this chapter, and they continued in contention beyond the publication of the Report.[53] The bastion for reform toward the production of the scientific physician had been the Council on Medical Education. Dr. Waite's report to the Council in 1908 had faulted the University of

Colorado for the teaching of anatomy more for the generalist than for the needs of the medical student.)[54]

Chapter V continues this curricular discussion, and it is here that we find application of the ideas to the schools but to schools in the abstract; no specific examples are drawn from the tour data. The schools are divided into two divisions: (1) those that require two or more years of college for admission and (2) those that require only the high school diploma.[55] Within the second division there was a range that runs from potentially adequate to miserably commercial. The potentially adequate had the correct ideals; "they lacked only the means...Once the means had been bestowed upon them, the remaining task will be merely the absorption or suppression of the various types of medical schools"[56] that are blatantly commercial and demonstrate no tendency toward research.

This theme of suppression of the commercial schools as indicated above and the one for economic support of the potentially adequate is constant throughout the Report. Flexner repeats it in the chapter on Finance--"the development of the requisite number of properly supported institutions and the speedy demise of all others."[57] That running theme culminates in the Report's final solution, in what is--all other considerations aside--its basic point.

The conclusion to Chapter V sets the basis for the final proposition coming in Chapter IX, "Reconstruction". That conclusion illustrates that the problem being attacked in the Report is

not that perceived by the profession but rather that seen by the Foundation. Here Flexner notes that despite the overall picture of medical education, there are at least 30 institutions

> well equipped to teach medical sciences in laboratories usually of modern construction... Our immediate problem has therefore two aspects; on the one hand to strengthen these institutions; on the other, with all the force that law and public opinion can weild to crush out the mercenary... 58

Chapter IX contains the scheme for solving those problems--the creation of a simpler network of medical centers. After analyzing a school's potential, which was determined against the criteria in Chapters IV-VII, Flexner wiped out 120 of them in what he considered not a radical move because 37 are so negligible and because the remaining have only a meager enrollment.[59] The survivors would be the bona-fide university types which had the responsibility to "actively participate in the advance of medical science", as he made clear in the analysis of the condition in New York state.[60] The remainder, numbering 31, were distributed throughout the country based on the ratio of per capita needs of the section and a school's capacity to meet those needs in their future production of physicians.[61]

This scheme may be called revolutionary, but it is not the revolutionary effect most writers discuss. The Report established no structure or principles. Rather, it used principles to establish the schools that would exist in the final solution. However, as will be pointed out in Flexner's own words later, not only was the reconstruction scheme never achieved but neither were a good

many of the specifics urged in the Report--at least not achieved to Flexner's satisfaction.

This polemic for the education of the scientist-physician was, as Pritchett characterized it many years later, the voice "in collective fashion of the views of the wisest medical man in America",[62] it was bound to the theory that public revelation of ills will serve to correct them. For the sake of publicity for the Report, the AMA hoped that the one lawsuit brought against those involved would go to trial, for it was feared "that Mr. Flexner's book will soon be forgotten unless something is done to keep the matter before the people."[63]

The lawsuit did not make it to trial, and Flexner's book has not been forgotten. That the treatment of this book in historical perspective ascribes to the publicity theory of change that motivated the Report in the first place is inherent in the claim for catalytic effect as described in the assertions discussed at the outset.

This problem of catalyst in any situation regarding the past may be an unhistorical question because the tools for dealing with it are not among the historian's techniques ordinarily.

For dealing with this issue we must go outside history to a quasi-experimental technique that comes from psychologist Donald Campbell.[64] The technique he presents allows analysis of a condition before and after a treatment hypothesized to effect a change in the condition. It is a time-series study done by graphing statistical data regarding the condition over a signi-

ficant period of time before and after the "experimental" treatment. In the case at hand, the graph would consist of the net number of school closings before and after the publication of the Report. No statistical treatment is necessary in this case to determine sifnificance between the two sides of the graph. A simple comparison of the years before and after 1910 will tell the story.

Before proceeding with a discussion of the conclusions, a few words about the data might be in order. Prior to 1913, when it published its "Life Chart of Medical Colleges", the Council had relied upon reports that proved to be erroneous, so its pre-1913 data (upon which Rothstein relied)[65] is unreliable.[66] It turns out, unfortunately, that the tabulation the Council made from the "Life Chart..." is also in error; someone miscounted. The data I have used, therefore, in Figure I comes from my own tabulation and for the years 1913-1919 from statements in the annual education issue of JAMA which specifically identify the schools merging or going out of existence along with those just opening.[67]

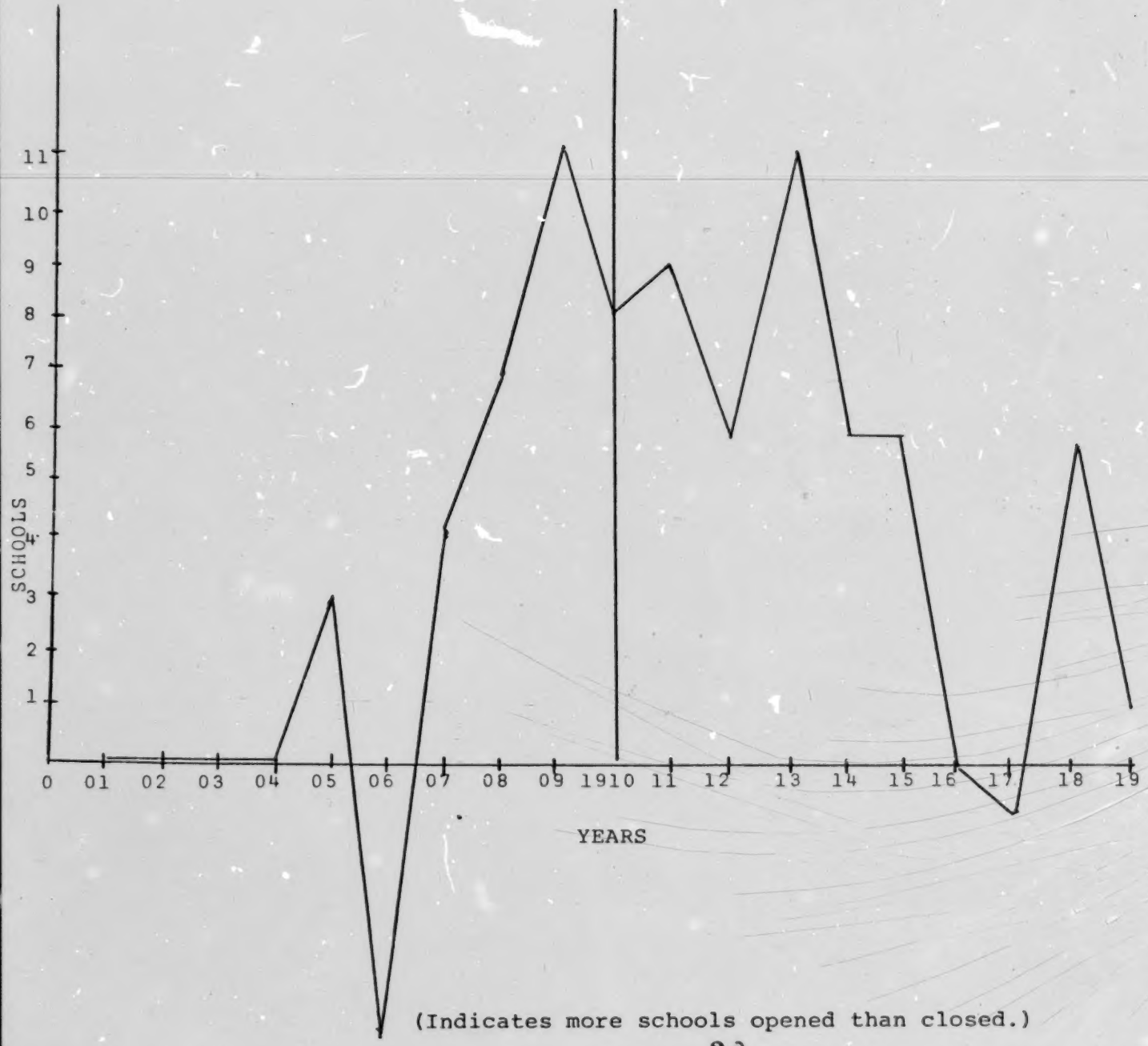
From 1901 to 1904, the number of medical colleges remained stable. The largest change occured in 1906 when the number of new colleges outstripped the closings. Thereafter, however caused, the trend was toward closings until 1910, when the openings again outstripped the closings. The pattern of closings after 1910 becomes erratic, with no clear tendency toward anything. (See Figure I, p. 18A).

The tendency that Rothstein and others see before 1910 had ceased at the time they argue it was accelerating. In order for their point to be true, the graph following 1910 would have to, at least, continue in the direction of 1908-1909, but actually to rise

FIGURE I

NET NUMBER OF SCHOOL CLOSINGS

1901-1919



(Indicates more schools opened than closed.)

more steeply than the 1907-1909 line for there to be any validity to the assertion of a catalytic effort. It is obvious that neither of these characteristics are present; therefore, the assumption that the Report had a catalytic effect is without substance.

I believe the Report had no effect on the thinking of medical educators in the United States. That it had no catalytic effect is demonstrable, but similar evidence for no effect at all is not as hard and fast. At least, there is not now any direct evidence for the effects that are presumed. Rather, it is a subjective estimation derived from the fact that the Report had an end not envisioned by medical educators; it did not meet their expectations.[68]

Flexner's own estimation of what had happended in American medical education from 1909 to 1924 concluded that there was a great deal to be desired.[69]

In comparison to European developments in the same time period, American changes were dramatic but not so significant without that comparison. The best schools in Class A had improved themselves as had the poorer schools in that classification but the difference between them remained the same. Full-time clinical teaching--the issue closest to Flexner's heart and for which he worked so hard--had not become the reality or standard. Busy practitioners still taught in the clinics to a degree too large to be satisfying. He reiterated the need for the greater interweaving of clinical and laboratory years.[70] And deplored the fact that there was still no real contact between the university and the medical school under certain still-prevailing conditions:

> no effective university contacts if the medical school is a practically autonomous and self-contained institution in a remote town or, worse still, is divided in the middle, the laboratory half of it on the university campus, the clinical half left to the tender mercies of busy practitioners, whether ten or a hundred miles distant.[71]

These and other problems Flexner reviewed, e.g., the four-year lockstep requirement, are generally still problems for today's medical educator.

If the Flexner Report did not affect medical education in the direction of establishing principles or a structure to meet the assured need for physicians, we might be enticed to reason that - even allowing for a number of other interacting variables - the premise motivating the publication (the effect of adverse publicity) is an invalid factor in the change process. However, that conclusion may hold only when we add the qualifier of time, i.e., we may be able to say only that given the moment of its use, adverse publicity may or may not have any effect on changing a particular condition.

Had the variations among the parties in this case been less discrepant, the results of the publication may have been quite different. This possibility suggests the need for comparative study of the unique variables interacting in any situation. But more importantly, since the number of variables may become immense, it suggests that the historian, taking all due considerations, turn to other fields for concepts needed to handle the variables and their potential influence.

I have suggested in this paper the great value of Campbell's time-series quasi-experimental technique. Other research I have conducted suggests that Albert Bandura's behavior modification psychology has help to offer as well as the aptitude-treatment interaction education studies which Cronbach has recently reported on.[72]

Without this expansion of historical techniques, I might be prompted to suggest that history, try as it may, can have nothing to say about the dynamics of change.

FOOTNOTES

1. Clark Kerr, "Remembering Flexner," Introduction to Abraham Flexner, Universities American, English, German, (Oxford: University Press, 1968), p.x. (paper)

2. Barrie Thorne, "Professional Education in Medicine" in Everett C. Hughes et al, Education for the Professions of Medicine, Law, Theology, and Social Welfare, (New York: McGraw-Hill, 1973), p. 17.

3. Howard Hiatt, "The need for University Involvement in Medical Education," 104 Daedalus (Winter, 1975), 259.

4. Saul Jarcho, "Medical Education in the United States--1910-1956," 26 Journal of the Mt. Sinai Hospital (#4, 1957), 351.

5. Julius B. Richmond, Currents in American Medicine, (Cambridge: Harvard U. Press, 1969), p. 17.

6. William G. Rothstein, American Physicians in the Nineteenth Century, (Baltimore: Johns Hopkins U. Press, 1972), p. 294, fn 25.

7. Gert Brieger, Review of Norwood's Medical Education in America before the Civil War, 48 Bulletin of the History of Medicine (Summer, 1974), 301.

8. Robert P. Hudson, "Abraham Flexner in Perspective: American Medical Education, 1865-1910", 46 Bulletin of the History of Medicine (November/December, 1972), 60.

9. Rosemary Stevens, American Medicine and the Public Trust, (New Haven: Yale U. Press, 1971), p. 96. (paper)

10. Carlton D. Chapman, "The Flexner Report by Abraham Flexner", 103 Daedalus (Winter, 1973), 7.

11. Lewellys Barker, "Medicine and the Universities," 4 American Medicine (1902) 143.

12. H.G. Weiskotten et al, Medical Education in the United States, 1934-1939, (Chicago: AMA, 1940), p. 7.

13. Fosdick, Adventures in Giving

14. "Minutes of the Council on Medical Education at New York, December 28, 1908" in Minutes of the Business Meetings of the Council on Medical Education, 1908-1917, (Bound transcripts at AMA headquarters in Chicago), pp. 6-7. Hereafter cited as Waldorf Minutes.

15. Ibid.

16. Stevens, American Medicine..., p. 66.

17. W.T. Councilman to Abraham Flexner (February 23, 1910); Flexner to Councilman (March 14, 1910). Professional Education File, Boxes 17-21 in the Flexner Collection, Library of Congress. All correspondence cited unless otherwise noted are from this collection.

18. "Annual Statement of the Secretatry...December 30, 1911" in Minutes of the Business Meetings...1907-1917, op. cit., p. 31.

19. "Reports on Medical Education and their Results," 55 Journal of the American Medical Association (July 9, 1910) 131-32

20. N. P. Colwell, "The Need, Methods and Value of a Medical College Inspection," 53 Journal of the American Medical Association (August 14, 1909), 513-14.

21. Abraham Flexner, Medical Education in the United States and Canada. Reprint edition published By Science and Health Publications, 1960, p. 12. Hereafter cited as Report.

22. Report, p. 140.

23. Henry Buchtel to Henry S. Pritchett (March 25, 1910).

24. Cf. Thomas V. Bonner, Medicine in Chicago--1850-1950, (Madison, Wisc.: American History Research Center, 1957), p. 115.

25. J.W. Holland to Flexner (January 5, 1909).

26. Report, p. 269.

27. Ibid., p. 72.

28. Frederick Hamilton to Pritchett (February 19, 1910).

29. Ibid.

30. James Walsh to Pritchett (March 30, 1910).

31. Hamilton to Pritchett (March 30, 1910).

32. Cf. Bonner, p. 115.

33. Flexner to Miss Cheeseman (April 25, 1909).

34. Francis P. Venable to Flexner (April 15, 1910).

35. George Stover to Andrew Carnegie (July 18, 1909).

36. William Hyde to Pritchett (February 23, 1910).

37. Flexner to Robert Pearce (October 28, 1909).

38. Flexner to A.W. Harris (March 16, 1910).

39. Report, Chapt. VIII, "Financial Aspects..."

40. Flexner to Harris (March 16, 1910).

41. Pritchett to Buchtel (March 25, 1910).

42. Henry Ernst to Pritchett (April 28, 1910).

43. Frederick C. Waite, "Impressions of a Visit to the Medical Department of the University of Colorado, July, 1908". Typescript copy, Box 18, Flexner Collection

44. Report, p. 276.

45. Flexner to Hamilton (February 25, 1910).

46. Pritchett to Buchtel (March 25, 1910).

47. Flexner to hamilton (February 25, 1910).

48. Report, p. 56.

49. Waldorf Minutes, p. 9.

50. Report , p. 57.

51. Ibid., p. 59.

52. Waldorf Minutes, p. 13.

53. O. L. Mulot, "The Error of College Criticism," Medical Record, (July 27, 1912), 151.

54. Waite, "Impressions."

55. Report, pp. 71, 77.

56. Ibid., pp. 79-80

57. Ibid., p. 127

58. Ibid., p. 89

59. Ibid., p. 151

60. Ibid., p. 276

61. Ibid. p. 1654.

62. Henry S. Pritchett, "The Relations of a medical Education to Medical Progress," 115 New York Medical Journal (January 4, 1922), 1.

64. Donald Campbell, "Reform as Experiments," 24 American Psychologist (1969). I am indebted to a colleague, Jonathan Smilansky, for in this matter of the time-series study.

65. See Supra note 6.

66. "Life Chart of Medical Schools," 61 JAMA (August 23, 1913), 578-81; 63 JAMA August 23, 1914), 681; 65 JAMA (August 21, 1915), 699; 67 JAMA (August 19, 1916), 599; 69 JAMA (August 18, 1917), 544; 73 JAMA (August 16, 1919), 514.

67. "Medical Education in the United States," 61 JAMA (August '23, 1913), 589.

68. Nation Confederation of State Medical Licensing are examining Boards, Proceedings, 20th Annual Convention, June 6, 1910.

69. Abraham Flexner, "Medical Education, 1909-1924", 82 JAMA (March 15, 1934), 834.

70. Ibid., 835.

71. Ibid., 837.

72. Lee J. Cronbach, "Beyond the Two Discipling of Scientific Disciplines" 30 American Psychologist (February, 1975), 116-27.